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ABSTRACT

In spite of major changes in women's work force participation, there is evidence that many female adolescents have limited their career aspirations because of stereotypical thinking in their career decision making. Evidence that these attitudes may be equally true for intellectually gifted females is inconclusive. This study was conducted to examine the career choices and expectations of 140 intellectually gifted female high school students in Ottawa, Ontario, Canada. Data were obtained from two sources: reported career choices and the Career Factor Checklist. Subjects selected 28 different careers, with 74.96% selecting professional careers, and 52.27% selecting male-dominated careers. Subjects perceived the strongest effect on their career choice to be based on individual factors, including self-expectancies, abilities, interests, need to achieve, and attitudes. Situational factors were seen to have the least effect on their career choices. Past research has indicated that bright and gifted women have not realized their potential, being underemployed and underrepresented in positions of power and leadership. The results of this study suggest that this picture may be changing, with the gifted adolescent girls selecting mainly professional careers in male-dominated occupational areas. (Author/NB)

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Career Aspirations of Gifted Canadian Secondary School Females

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Abstract

This study obtained a description of the career expectations of 140 intellectually gifted female secondary school students in Ottawa, Ontario, Canada. Data was obtained from two sources: (1) reported Career choices; and (2) the Career Factor Checklist. Subjects selected 28 different careers, with 74.96% selecting professional careers, and 52.27% selecting male-dominated careers. Subjects perceived the strongest effect on their career choice to be based on individual factors, including self-expectancies, abilities, interests, need to achieve, and attitudes. Situational factors were seen to have the least effect on their career choice.

Introduction

Work force participation of women and family work patterns have shown revolutionary changes in the past two decades. The female high school student is at the center of this transition, with personal and cultural expectations very different from those which guided her mother's life.

During adolescence, males begin to identify themselves in terms of occupation and to plan academic careers related to occupational choice (Erikson, 1950; Angrist, 1969). Adolescent girls, however, have tended to see occupations as less related to their identity, even if they consider work outside the home as part of their future (Baker, 1985; Douvan, 1970).

Two long-range studies have indicated that gifted females' career patterns do not differ from those of the general female population. In the Stanford Gifted Child Study (Terman and Oden, 1947), women's adult occupations showed little relationship to their IQ scores, with two-thirds of those with IQs of 170 or above employed as housewives and office workers. With males, there was a close relationship between intellectual ability and career success.

In the Longitudinal Study of Gifted Students (Watley, 1969), men and women receiving National Merit Scholarships in 1956 and 1957 were followed over an eight-year period. While students showed equal abilities on the tests used, women were significantly lower in all areas of academic achievement and aspirational levels.

More recent research indicates change. Some research shows young women choosing less stereotypical jobs and scoring high on career commitment (Farmer, 1983). Komarouskey (1982), in a study of female college freshman, found that career was a foremost concern for a significant number. Kramer (1986) found that gifted girls differed little from gifted boys in career expectations and aspirations. However, Baker (1985) in extensive Canadian studies, found gender was still the factor most predictive of career choice and aspirations.

It would appear, then, there are subtle pressures toward stereotypical job segregation, and these pressures limit the choices and aspirations of girls. Whether these limits are similar for intellectually gifted girls is not clear from the literature. Rodenstein, Pfleger and Corlango (1977) suggest there may be even greater career choice problems for gifted girls due to societal expectations because they are gifted in conflict with expectations because they are female. Others (Reznikoff and Topol, 1979; Kaufman and Simpson, 1981) suggest that gifted girls may indeed restrict their career plans. Callahan (1980) concluded that in spite of approximate equality in the numbers of gifted male and female children, the literature overwhelmingly identifies "gifted" traits as belonging to males suggesting that gifted females may not be reaching their potential.

Purpose of the Study

In spite of major changes in women's work force participation, there is evidence that many female adolescents have limited their career aspirations because of stereotypical thinking in their career decision making. Evidence that these attitudes may be equally true for intellectually gifted females is inconclusive. This study examined the career choices of a sample of gifted Canadian secondary school females.

The Questions

As in most examples of educational research, this study was designed to describe a particular population. The questions addressed were:

1. Will intellectually gifted female students select professional careers?
2. Will intellectually gifted female secondary school students select careers defined as "male dominated"?
3. Will gifted adolescent girls show an awareness of the factors affecting their career decisions?

Methodology

Subjects

The subjects of this study were senior high school students in Ottawa Board of Education schools, Ottawa, Ontario, Canada. They had been invited by the Women's Study Consultant of the Ottawa Board, through their school principals, to attend a conference for gifted girls. The conference was part of a two-step intervention to raise their awareness of the career

options open to them. They attended a three-day conference and were then matched to mentors or role models in the careers of their choice. All data were gathered at the conference on the opening day, immediately following the welcome to participants.

All subjects spoke English; all presentations at the conference were in English. Twenty-seven of the students were attending school in French. Thirty of the students were attending schools specializing in the arts -- the visual, dramatic, and performing. Entrance to these schools requires both scholastic and artistic achievement. Ottawa gifted students come primarily from middle and upper socioeconomic classes, with fewer than 1% coming from the eight schools with programs for the disadvantaged.

Instruments

Data for this study were obtained from two sources:

1. Career Choices: The data on career choices was obtained from registration material. To match the students with mentors in the occupations of their choice, the girls were asked to list three career choices. These data were used to answer the question on the percentage of professional career choices and selection of "male dominated" careers. For this study, professional careers were defined as those careers requiring more than four years college/university study. "Male dominated" careers were identified as those careers employing more than 50% males (Marshall, 1987).

2. Career Factor Checklist: The Career Factor Checklist was developed by O'Neil et al. (1978) and includes 28 items divided into six factors. Each of six general factors (individual, societal, familial, socioeconomic, situational, and psychosocial-emotional) and twenty-two sub-factors is represented by one item on the Career Factor Checklist. The sub-factors are divided as follows:

   a. familial (4 items)
   b. societal (4 items)
   c. individual (6 items)
   d. socioeconomic factors (5 items)
   e. situational factors (3 items)
   f. psychosocial-emotional factors (6 items)

The respondents are asked to respond on a 5-point Likert scale (unsure of effect, no effect, weak effect, moderate effect, strong effect). They are asked to use the "unsure" category only if definitely unsure, or if they have never thought of the factor.

The CFC was developed using data from a cross-sectional sample of high school, undergraduate, and graduate students (N = 1,435)(O'Neil, et al., 1980). The CFC item responses for the total samples of males and females were factor analyzed using the BMDP/P4M principal-components factor analysis program. Items with factor loadings of at least .30 were used to define the factors. Six separate two-factor analyses of variance

(ANOVA) were used to test for differences in the effects of each of the six factors for sex and grade level.

Results

Career Choice

Answers to the questions will intellectually gifted female students select careers which fit the definition of professions and will intellectually gifted female students select professional careers from those defined as "male dominated"?, were obtained from the first career choice listed by the participants on their registration materials. Career choices were tabulated on a simple frequency distribution. There was grouping only in six specific career areas:

1. Medical Doctor: Almost all were specific in terms of specialty -- surgeon, pediatrician, family doctor.
2. Professor: Specific subjects were mentioned -- history, literature.
3. Entrepreneur: Specific examples were given -- boutique, dress shop.
4. Engineers: Included civil and chemical.
5. Scientists: Included very specific areas -- geologist, marine biologist, archaeology.
6. Arts and Entertainment: Included acting, visual arts, design and athletics.

In all other cases, the participants' choices are listed as given in Table 1.

(Place Table 1 about here)

Selection of career choice was a completely open-ended process with no limits set. Because of the nature of course selection in Ontario secondary schools, most subjects would, by this phase in their education, have made serious choices about future education and career options. It is therefore reasonable to assume that these choices, to a large extent, reflect intentions for future directions.

A range of 28 career choices is shown in Table 1. Of these, 18 fit the definition of profession. One hundred and five of the 140 subjects, or 75%, selected careers fitting the professional definition. Of professions selected, 11 fit the definition of male dominated. Eighty-three of the 140 subjects, or 52%, selected male-dominated careers.

There is some evidence that the work environment in which these gifted adolescent girls live influenced some choices. Journalists, diplomats and translators are very much part of the national capital milieu. The relatively low percentage of engineers (4.28%) in a work environment that has high technology corporations as major employers is significant. The absence of politician or political scientist is also noteworthy. The traditional female occupations of teacher, nurse, and secretary each account for less than 1% of the sample.

Career Factor Checklist

Will gifted adolescent girls show an awareness of the factors affecting their career decisions? Table 2 indicates

there was considerable variance in the perceived strength of each factor, with individual factors stronger than any others. All individual factors were seen to be stronger than factors in any other category. Within the individual factors, all six subfactors were perceived as strong, with no individual factor being given the "no effect" rating.

(Place Table 2 about here)

Closest to the individual factors in perceived strength was the familial factor, with Mother's Role Model showing strongest perceived influence, only slightly greater than Father's Role Model. Societal factors were next in perceived influence, with "Educational Experiences" as most highly rated. Since students had been enrolled in programs particularly designed to meet their ability, this was not an unexpected result.

Socioeconomic, situational and psychosocial factors were all perceived as having relatively weak influence on career choice, with race seen as least significant but of moderate or high significance by nine subjects.

Summary

Research has indicated that in the past, bright and gifted women have not realized their potential, being underemployed and underrepresented in positions of power and leadership. This study indicates that this picture may be changing, with the gifted adolescent girls selecting mainly professional careers in male-dominated careers.

It should, however, be noted that the subjects in this study represented a very select population of students, who were gifted school achievers living in a large urban center, enjoying a relatively privileged socioeconomic status, with easy access to post-secondary institutions. These are the young women who have all of the advantages and would be expected to aspire to professional careers. The results should be viewed in this context.

The 75% selecting professional careers is considerably higher than the 53% of girls who did so in Baker's (1985) study and is close to the 72% of boys who predicted professional careers in the same study. Baker, however, was researching a cross-sectional sample that included broad ability levels and socioeconomic backgrounds, as well as mixed rural, urban representation. It might, therefore, be concluded that gifted girls' professional career expectations most closely resemble those of average boys in the general population.

Career choice information provides several indicators of the direction of career patterns for female workers. The high incidence of the choice of medical doctor confirms a trend that will see this profession no longer included in the male-dominated category in the near future (Marshall, 1987). It is also indicative of a trend for women to continue to select careers involving caring for others (Marshall, 1987). The very small percentage selecting nursing, which has historically been a woman's occupation, indicates the movement of gifted girls to

become doctors rather than nurses. A similar trend can be seen in the higher incidence of "professor" compared to the traditional role of "teacher". This trend moved professor from the male-dominated category between 1971 and 1981 (Marshall, 1987).

The results on the Career Factor Checklist are consistent with adolescent development, with adolescent egocentricity providing an explanation for the strong emphasis on the individual factors. This emphasis would also be supported by the subjects' identification as "gifted", which raises awareness of their ability and potential. The relative strength of the familial factors is a function of the subjects' late adolescent stage (ages 15+-18), when previous adolescent/parental conflict has lessened. The relatively low weight given to socioeconomic factors may be explained by the relatively high socioeconomic status of the subjects -- an understandable acceptance of privilege and a lack of awareness of its effect on their options.

It is important in viewing results such as these not to ignore items which score low in relation to others but which on a personal level may indicate a need for educational or counseling intervention. Such an item is fear of failure, which had a relatively low mean (2.92) but is significant from an educational viewpoint since 40 (28.57%) of these bright and capable students identified it as a factor of some importance in their career decision making.

In accepting the premise that all items on the Career Factor Checklist have some effect on career decision making, it can be concluded that subjects need intervention to raise their awareness of these factors. Specific recommendations for educational programs include:

1. Early identification and appropriate programming for gifted and talented students.
2. Exposure of female students to a broad range of career options.
3. Opportunities for senior students to discuss and explore career and home demands with appropriate female role models.
4. Specific education to raise awareness among students of items in the Career Factor Checklist and how they impact career choices.

Changes in labor force participation of women in the last two decades have been concurrent with major changes in career options. The gifted adolescent females described in this study seem to be aware of many of these changes and to be preparing for them with professional career plans. Their lack of awareness of barriers and stresses involved in such changes indicates a need for educational intervention and social institutional change. Without such changes and sufficient support systems, these promising young women may become yet another generation of bright women destined to realize less than their full potential.

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Table 1. Career choices of gifted Canadian secondary school females (n = 140).

Career	Choice N	Choice %	Professional Yes	Professional No	Male Dominated Yes	Male Dominated No
Medical Doctor	21	15.00	X		X	
Scientist	17	12.14	X		X	
Lawyer	13	9.29	X		X	
Business Admin.	12	8.57	X		X	
Artists & Entertainers	11	7.85		X		X
Psychologist	8	5.71	X			X
Architect	6	4.28	X		X	
Engineer	6	4.28	X		X	
Journalist	6	4.28		X		X
Professor	6	4.28	X			X
Entrepreneur	5	3.57		X		X
Diplomat	4	2.85		X		X
Child Care	3	2.14		X		X
Physiotherapist	3	2.14	X			X
Accountant	2	1.43	X		X	
Economist	2	1.43	X		X	
Nurse	2	1.43	X			X
Translator	2	1.43	X			X
Veterinarian	2	1.43	X		X	
Dentist	1	0.71	X			X
Nutritionist	1	0.71	X			X
Pharmacist	1	0.71	X		X	
Pilot	1	0.71		X		X
Religious Minister	1	0.71	X		X	
Secretary	1	0.71		X		X
Teacher	1	0.71	X			X
Travel Agent	1	0.71		X		X
Truck Driver	1	0.71		X		X

Table 2. Frequency distribution and mean rating of factors influencing career choice as perceived by gifted Canadian adolescent females (n = 140).

Factor	Frequency *					Mean
	1	2	3	4	5	
Familial Factors						
1. Family	1	10	25	42	62	4.10
2. Childhood Experience	5	25	40	62	8	3.31
3. Mother's Role Model	0	15	31	55	39	3.84
4. Father's Role Model	2	27	25	62	24	3.70
Total Familial	8	77	121	221	133	3.70
Societal Factors						
5. Society	1	25	25	65	24	3.61
6. Educational Experiences	2	17	32	55	34	3.73
7. Peer Group	2	27	63	38	10	3.19
8. Mass Media	4	27	73	31	5	3.04
Total Societal	9	96	193	189	73	3.39
Individual Factors						
9. Individual	1	0	0	1	138	4.96
10. Self-expectancies	0	0	3	2	117	4.81
11. Abilities	0	0	1	27	112	4.79
12. Interests	0	0	0	28	112	4.80
13. Needs to achieve	0	0	5	28	107	4.73
14. Attitudes	0	0	1	47	92	4.65
Total Individual	1	0	10	133	678	4.79
Socioeconomic Factors						
15. Socioeconomic	3	32	54	45	6	3.14
16. Social Class	3	42	46	38	11	2.97
17. Race	2	115	14	6	3	1.52
18. Sex Discrimination	1	71	41	21	6	2.71
19. Supply and demand jobs	0	21	46	59	14	3.47
Total Socioeconomic	9	281	201	169	40	2.76
Situational Factors						
20. Circumstances	32	30	49	29	0	2.54
21. Chance	21	29	53	34	3	2.78
22. Course of least resistance	2	92	36	9	1	2.39
Total situational	55	151	138	72	4	2.57
Psychosocial Emotional Factors						
23. Psychosocial Barriers	4	54	43	35	4	2.86
24. Fear of Failure	1	56	44	36	4	2.92
25. Fear of Success	1	74	40	21	4	2.66
26. Lack of Assertiveness	1	67	57	9	6	2.66
27. Lack of Confidence	4	62	53	15	6	2.69
28. Role Conflict	4	62	37	30	7	2.81
Total	15	375	274	146	31	2.77

* 1 = unsure of effect, 2 = no effect, 3 = weak effect, 4 = moderate effect, 5 = strong effect